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1984

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# ILLINOIS COMMERCIAL SPRAY SCHEDULE

## Apples, Peaches, Nectarines, Apricots, Plums, Pears, and Cherries

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SUPPLEMENT TO CIRCULAR 1151

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

COLLEGE OF AGRICULTURE

COOPERATIVE EXTENSION SERVICE

IN COOPERATION WITH ILLINOIS NATURAL HISTORY SURVEY

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## APPLES

MATERIALS, RATE PER  
100 GALLONS OF WATER  
FOR DILUTE SPRAYS

### APPLICATION AND PURPOSE

### SPECIAL SUGGESTIONS

#### DORMANT TO GREEN TIP

Scale insects, aphids, and red mites

SUPERIOR OIL, 2 gal.

DIFOOLATAN 4F, 3 qt. or 5 qt.

Thorough coverage is the most important factor. Varieties susceptible to powdery mildew should be sprayed in dormancy so that a mildewcide can be used in  $\frac{1}{2}$ -inch stage.

Application at the 5-qt. rate during silver tip but before  $\frac{1}{4}$ -inch green should control scab until calyx (or about 6 weeks, depending on rainfall). Difolatan will not control mildew or the rust diseases; therefore, these diseases on susceptible varieties will need additional control measures beginning at pink bud. On these cultivars the 3-qt. rate or an alternate fungicide (see green tip) is suggested. Application later than  $\frac{1}{4}$ -inch green tip will produce severe leaf injury.

Mostly for varieties susceptible to fire blight. Use the copper sulfate during dormancy; the bordeaux-oil is best at silver tip. Difolatan and bordeaux are compatible with superior oil at this time of year. Do not apply oil after a Difolatan spray.

#### GREEN TIP THROUGH TIGHT CLUSTER

##### Aphids

Systemic phosphate insecticide  
— plus —

DODINE 65W (Cyprex),  $\frac{3}{8}$  to  $\frac{1}{2}$  lb.

— or —

DODINE 65W (Cyprex),  $\frac{1}{4}$  lb., and Microfine wettable SULFUR, 5 lb.

— or —

DIKAR, 2 lb., and TRITON BI956, 3 oz.

— or —

BENOMYL 50W (Benlate), 2 to 3 oz., and CAPTAN 50W, 1 lb.

— or —

FUNGINEX 18EC, 1 pt.

Pests tolerant to currently used pesticides are appearing. Therefore we recommend alternating pesticides during the spray program and using labelled pesticide mixes. On varieties susceptible to powdery mildew use Dikar, benomyl-captan, or include sulfur with dodine. It is important to provide trees with protective fungicides at 7- to 10-day intervals throughout this period. Scab and mildew control must begin at green tip.

Wetting agents increase the effectiveness of Dikar against powdery mildew.

Use 2 oz. of benomyl for normal conditions and 3 oz. during severe scab pressure to deactivate scab. Never use benomyl alone. When benomyl is applied to deactivate scab lesions, combine it with protectant fungicides.

Use Funginex for "kick-back" action up to 96 hours after a scab infection period.

#### PINK BUD

Scab, powdery mildew, cedar-apple rust

DIKAR, 2 lb., and TRITON BI956, 3 oz.

— or —

BENOMYL 50W (Benlate), 2 or 3 oz., and MANCOZEB 80W, 12 oz., or POLYRAM 80W, 12 oz.

— or —

DODINE 65W (Cyprex),  $\frac{1}{4}$  lb., and Microfine wettable SULFUR, 5 lb., and a rust fungicide  
— or —  
BAYLETON 50W, 1 oz.

If the 3-qt. rate of Difolatan was used, now is the time to apply additional scab sprays.

Rust control must start in this spray. Mancozeb (Manzate 200, Dithane M-45), Polyram, zineb, and ferbam are all good rust fungicides. Ferbam may affect fruit finish of Golden Delicious if used after calyx.

Bayleton, a new product, is very effective against rust diseases and powdery mildew but weak against scab. If scab is a problem, combine Bayleton with a good scab fungicide.

MATERIALS, RATE PER  
100 GALLONS OF WATER  
FOR DILUTE SPRAYS

APPLICATION AND PURPOSE

SPECIAL SUGGESTIONS

**PINK BUD (continued)**

Curculio, leaf roller

AZINPHOSMETHYL 50W (Guthion),  
 $\frac{5}{8}$  lb.

Only necessary if curculio or leaf roller is severe or if other chewing insects are present. If fruit dimpling caused by tarnished plant bug is a problem, use a carbamate insecticide such as methomyl or Sevin. Pydrin or permethrin is effective in the pink bud stage. The control of white apple leaf hoppers and leaf miners is most effective at petal-fall.

This prevents a deficiency of boron, which affects pollen germination. If ground applications of boron are made, eliminate foliar application. See Circular 1151.

**EARLY BLOOM**

Fire blight

STREPTOMYCIN, 50 or 100 ppm

On susceptible varieties start streptomycin at pink. Continue at 3-day intervals through bloom. Above 65° F. use 50 ppm; below 65° F., or when mixed with fungicides, use 100 ppm. Streptomycin uptake is enhanced by applying it as a dilute spray and by using spreader activators, such as glyodin, Regulaid, or glycerin, at 1 to 2 pints per 100 gal.

Fungicide applications are not recommended at full bloom as many injure pollen and may interfere with fruit set. During prolonged bloom, however, scab, mildew, and cedar-apple rust must be controlled. When simultaneous application of a fungicide and streptomycin is necessary, benomyl, captan, or glydin should be used.

**CALYX AND FIRST COVER**

Codling moth, leaf roller,  
curculio, aphids

PHOSMET 50W (Imidan), 1½ lb., or  
AZINPHOSMETHYL 50W (Guthion),  
 $\frac{5}{8}$  lb.  
— plus either —

POLYRAM 80W, 2 lb.  
— or —

DIKAR, 2 lb., and  
TRITON B1956, 3 oz.  
— or —

BENOMYL 50W (Benlate), 2 or 3 oz.,  
and  
MANCOZEB 80W, 12 oz., or  
POLYRAM 80W, 12 oz.

STREPTOMYCIN, 100 ppm  
See Circular 1151.

Fire blight

Control blight in secondary bloom on susceptible varieties. The use of streptomycin after bloom for twig blight control is of limited value and is not recommended.

Summer varieties are best thinned at petal-fall. Fall and winter varieties are best thinned according to fruit size, preferably when king fruit is 10 to 11 millimeters in diameter.

Add to the calyx spray if there is no ground application of boron. See Circular 1151. Use as needed in the first and third cover sprays. Do not use on Golden Delicious.

SOLUBOR, 1 lb.  
UREA (45 percent N), 5 lb.

**100 GALLONS OF WATER  
FOR DILUTE SPRAYS**

SPECIAL SUGGESTIONS

COVER SPRAYS (remainder of the season)	
All insects, diseases, and mites	AZINPHOSMETHYL 50W (Guthion), $\frac{5}{8}$ lb. — plus either — POLYRAM 80W, 1½ lb. — or — DIKAR, 2 lb., and TRITON B1956, 3 oz. — or — BENOMYL 50W (Benlate), 2 oz., and CAPTAN 50W, 1 lb. — or — CAPTAN 50W, 1 lb., and ZINEB 75W, 1 lb. CALCIUM CHLORIDE, 2 lb. or 3 lb.
Bitter pit and Jonathan spot	PROMOLIN, 1-1½ pt. ALAR, 1 lb. and PROMOLIN, 1 pt. ALAR, 1 lb. ETHREL, 1 pint, and NAA, 10 ppm, and 2,4,5-TP, 10 ppm See Circular 1151.
GROWTH REGULATOR SPRAYS	
To increase "tyneness" of Red Delicious	PROMOLIN, 1-1½ pt.
To increase red color of Jonathan	ALAR, 1 lb. and PROMOLIN, 1 pt.
To delay harvest, increase firmness and color	ALAR, 1 lb.
To advance harvest	ETHREL, 1 pint, and NAA, 10 ppm, and 2,4,5-TP, 10 ppm
To prevent preharvest drop	See Circular 1151.
DORMANT	
Scale insects, red mites, leaf curl	SUPERIOR OIL, 2 gal., and 6-6-100 BORDEAUX — or — FERBAM 76W, 2 lb. — or — BRAVO 500, 1½ pt.
PINK BUD	
Tarnished plant bug, curculio, oriental fruit moth	AZINPHOSMETHYL 50W (Guthion), $\frac{5}{8}$ lb., or CARBARYL 50W (Sevin), 2 lb.; or METHOMYL L (Lannate, Nudrin), 1½ pt.
PEACHES, NECTARINES, APRICOTS	
	The oil controls scale and mites; the fungicide prevents the development of leaf curl. Thorough coverage in the fall or BEFORE buds start to swell in the spring is critically important for control of leaf curl. Dichlone 50W, 1 lb., is also effective against leaf curl, but it is not compatible with oil. The compatibility of Bravo with spray oils is not known.
COVER SPRAYS (remainder of the season)	
All insects, diseases, and mites	As needed at 10- to 14-day intervals after the first cover. Alternate phosphate insecticides are phosmet (Imidan), phosalone (Zolone), malathion, parathion, or diazinon. Parathion and diazinon are outstanding for San Jose scale and spotted tentiform leaf miner. Red mites may need suppression through this period. Northern Illinois growers should be aware of apple maggot in late August. If cicadas are laying eggs, spray with carbaryl 50W, 2 lb. per 100 gal. water, every 7 days. Also use carbaryl for young grasshoppers in or near young orchards.
	Rust and powdery mildew control should continue through third cover. Folpet (Phaltan), 1½ to 2 lb. per 100 gal. should start at fifth cover if Botryosphaeria is serious.
	On Jonathan and Red Delicious add 2 lb. calcium chloride per 100 gal. in the third, fourth, and fifth cover sprays, 3 lb. in later sprays. Limit applications of calcium chloride on Golden Delicious to a trial basis. For low-volume sprays apply 4 lb. per acre in the third, fourth, and fifth cover sprays and 6 lb. per acre in later sprays. Add the calcium chloride last when preparing sprays. See Circular 1151.
GROWTH REGULATOR SPRAYS	
To increase "tyneness" of Red Delicious	Apply 100 gal. of solution per acre when the kings are in full bloom or split the application, making one application at half rate when the kings are in full bloom plus another at half rate at petal-fall.
To increase red color of Jonathan	Apply 100 gal. of solution per acre 60 to 85 days before normal harvest date.
To delay harvest, increase firmness and color	Apply 60 to 85 days before normal ripening date to McIntosh, Jonathan, and later varieties.
To advance harvest	Apply one to two weeks before desired harvest date to Jonathan and spur-type Red Delicious. Apply as a dilute spray with thorough coverage. Stop-drop materials must be applied with Ethrel. Works well on apples previously treated with Alar.
To prevent preharvest drop	Alar applied to delay harvest acts as a stop-drop preventative. NAA and 2,4,5-TP may be applied when apples start to drop.
DORMANT	
Scale insects, red mites, leaf curl	The oil controls scale and mites; the fungicide prevents the development of leaf curl. Thorough coverage in the fall or BEFORE buds start to swell in the spring is critically important for control of leaf curl. Dichlone 50W, 1 lb., is also effective against leaf curl, but it is not compatible with oil.
PINK BUD	
Tarnished plant bug, curculio, oriental fruit moth	Apply when buds show pink. Must not be applied when any blossoms are open, as this will kill honey bees. Azinphosmethyl is best for curculio. Pydrin or permethrin is good for control of tarnished plant bug and stink bug.

MATERIALS, RATE PER  
100 GALLONS OF WATER  
FOR DILUTE SPRAYS

APPLICATION AND PURPOSE

**EARLY TO FULL BLOOM**

**Brown rot blossom blight**  
BENOMYL 50W (Benlate), 4 oz., or  
THIOPHANATE-METHYL 70W (Topsin-  
M), 8 oz., plus  
CAPTAN 50W, 1 lb.

— or —

Microfine wettable SULFUR, 3 lb., and  
DICHLONE 50W (Phygon), 1/4 lb.  
— or —  
FUNGINEX 18EC, 3/4 -1 pt.

**PETAL-FALL THROUGH COVER SPRAYS**

**Curculio, oriental fruit moth,  
stink bugs, red-banded leaf  
roller, and catfacing insects**  
AZINPHOSMETHYL 50W (Guthion),  
5/8 lb., or  
PHOSMET 50W (Imidan), 1 1/2 lb.  
— plus —

**Brown rot and peach scab**  
Microfine wettable SULFUR, 6 lb.

Try to make two applications, one in early bloom and one in full bloom. Do not use insecticides after first blossoms open.

Thiophanate-methyl 70W (Topsin-M) is a relatively new fungicide in Illinois. Its spectrum of activity is identical to that of benomyl and it therefore should be used with the same precautions as benomyl (see below).

Fungi tolerant to currently used fungicides (benomyl and thiophanate-methyl) are appearing. We therefore recommend alternating fungicides in the spray program and using suggested fungicide mixes. Never use benomyl or thiophanate-methyl alone or in combination with each other. Always combine them with protectant fungicides.

Parathion and diazinon are alternative insecticides and are especially effective against San Jose scale. For terrapin scale control, either add Systox to the regular spray when needed or use diazinon.

Where peach scab has been a problem, continue sulfur or benomyl up to 40 days before harvest; after this period, another fungicide may be used. Sulfur and benomyl are the only fungicides that will control peach scab.

A complete application is needed about every 14 days through this period. Normally, insecticides are not used after the first 2nd-brood curculio spray. Watch harvest restrictions. See borer control section.

Mycoshield (oxytetracycline) should be applied on a strict 7-day schedule beginning at shuck-split and continuing until 3 weeks before harvest. When warm, rainy weather prevails during early to mid-summer, bacterial spot may become serious. The combination of captan and dodine added to the cover sprays may help alleviate the problem.

Apply as a dilute spray with full coverage just before pit hardening, when the peaches loosen and can be mechanically thinned. Alar advances harvest 3 to 5 days and promotes uniform ripening.

**PREHARVEST AND POSTHARVEST FUNGICIDES**

**Brown rot**  
BENOMYL 50W (Benlate), 4 oz., or  
THIOPHANATE-METHYL 70W (Topsin-  
M), 8 oz., plus  
CAPTAN 50W, 1 lb.  
— or —  
FUNGINEX 18EC, 3/4 -1 pt.

— or —  
CAPTAN 50W, 2 lb., plus  
BOTRAN 50W, 2 lb.

Brown rot becomes increasingly important as fruit begins to ripen; therefore, begin a 7-day spray schedule starting 4 weeks prior to harvest. Benomyl, captan, Funginex, dichlone, and sulfur all control this disease. During hot weather, sulfur applied just before harvest may reduce fruit finish. Alternate fungicides and observe harvest restrictions.

Do not use more than three applications of Funginex to control fruit rot. Botran is specific for Rhizopus rot and is best added to the hydrocooler water as a postharvest dip.

SPECIAL SUGGESTIONS

MATERIALS, RATE PER  
100 GALLONS OF WATER  
FOR DILUTE SPRAYS

APPLICATION AND PURPOSE

SPECIAL SUGGESTIONS

**BORER CONTROL**

Peach borer, lesser peach  
borer, American plum borer

ENDOSULFAN 50W (Thiodan) 1½  
lb., or  
AZINPHOSMETHYL 50W (Guthion),  
½ lb., or  
CHLORPYRIFOS 4E (Lorsban), 1½-2 pt.

Make two to four applications but adhere to harvest restrictions on the different varieties. July and August are the critical months. Thorough coverage of all wounds and gummy areas of all major branches is essential. This spray must be applied with a hand gun instead of the mist-blower type sprayer. Chlorpyrifos (Lorsban) should be applied to peach tree trunks up to scaffold limbs.

**PLUMS**

**DELAYED DORMANT**

Scale insects, red mites,  
black knot

SUPERIOR OIL, 2 gal.

Apply before buds begin to open. The oil controls scale and mites. Prune out and burn all black knots during the dormant period.

**PETAL-FALL THROUGH SECOND COVER**

Curculio, brown rot

AZINPHOSMETHYL 50W (Guthion),  
½ lb.  
— plus —

BENOMYL 50W (Benlate), 4 oz., plus  
CAPTAN 50W, 1 lb.  
— or —  
CAPTAN 50W, 2 lb.

Apply a spray every 10 to 14 days for three times, starting at petal-fall. Add a miticide if needed. For borer control follow the suggestions given under peaches. Alternate fungicides during the spray program.

Dichlone (Phygon, Quintar) will provide excellent control of brown rot blossom blight. Thiophanate-methyl 70W (Topsin-M) can be substituted for the benomyl but should be used in combination with captan or dichlone.

**ADDITIONAL COVERS**

Brown rot

BENOMYL 50W (Benlate), 4 oz., plus  
CAPTAN 50W, 1 lb.  
— or —  
CAPTAN 50W, 2 lb.

Start these sprays about 3 weeks before harvest and apply about every 7 days. Alternate fungicides during the spray program.

**DELAYED DORMANT**  
Pear psylla, scale insects,  
leaf spot

SUPERIOR OIL, 2 gal., and  
FERBAM 76W, 2 lb.

Apply just before buds begin to open.

**BLOOM**  
Fire blight

STREPTOMYCIN, 100 ppm

Three sprays 3 days apart, starting with the first blossoms. May be applied during the day for effective control. Be sure to continue on late blossoms. See early bloom section under apples.

MATERIALS, RATE PER  
100 GALLONS OF WATER  
FOR DILUTE SPRAYS

SPECIAL SUGGESTIONS

**CALYX THROUGH COVER SPRAYS**

Codling moth, curculio, leaf spot, scab  
**AZINPHOSMETHYL 50W (Guthion),  
5/8 lb.**  
— plus either —

**CAPTAN 50W, 1 1/2 lb., or  
FEBAM 76W, 1 1/2 lb.**

Start calyx spray as soon as the petals have fallen and continue at 12- to 14-day intervals for at least 3 covers. Later, apply azinphosmethyl alone if psylla nymphs are visible on water sprouts.

**CHERRIES**

**DORMANT**

**Scale insects**  
**SUPERIOR OIL, 2 gal.**

Apply before the buds open.

**FIRST AND SECOND COVER SPRAYS**

Brown rot, cherry leaf spot,  
curculio, slugs  
**AZINPHOSMETHYL 50W (Guthion),  
5/8 lb.**  
— plus either —

**CAPTAN 50W, 2 lb.**

— or —

**WETTABLE SULFUR, 6 lb.**

— or —

**DICHLONE 50W, 1/2 lb.**

Start right after the shucks have fallen with the first cover. Apply a second cover spray 10 days later.

**ADDITIONAL SPRAYS**

**Cherry leaf spot**

**DODINE 65W (Cyprex), 1/2 lb., or  
CAPTAN 50W, 2 lb.**

Apply immediately after harvest. One or two sprays should be adequate. Spray more if there is evidence of leaf spot.

A phosphate insecticide may be needed if insects attack leaves. Borers should be controlled as suggested for peaches.

See the section on peaches, nectarines, and apricots for suggested borer sprays.

**mite control:** It is important to avoid using insecticides that are toxic to predatory mites. If phosphate insecticides will kill plant-feeding mites, they will also kill predaceous mites. Miticides, however, may be more selective, and the following miticides can be used without killing predatory mites: DICOFOL (Keithane), OMITE, OVEX, PLICTRAN, TETRADIFON (Tediom), and VENDEX. The miticide OXYMAL (Vydate) will kill all mites. Some fungicides, such as DIKAR and DINOCAP (Karathane), give mite suppression and allow good predatory mite survival. BENOMYL (Benzilate) suppresses both types of mites. Where red mites have been a problem, use oil in the dormant spray.

**RESTRICTIONS ON PESTICIDES USED ON TREE FRUITS:** The following restrictions are those in effect as of December 1, 1983. Growers are urged to follow directions on the manufacturer's current label at all times. When mixing several pesticides in the same tank, use the time restriction with the longest interval.

Pesticide	Number of days between last application and harvest						Number of days between last application and harvest					
	Apples	Pears	Cherries	Peaches	Plums	Pesticide	Apples	Pears	Cherries	Peaches	Plums	
Pounce (permethrin)	1	14D	...	7	...	Mesural Mycoshield (oxytetracycline)	...	...	7D	21E	...	
Bayleton (benomyl)	0	0	0	0	0	Omite	...	...	...	21	28C	
Bordeaux	0	0	0	0	0	Ovex	8	...	7D	14C	...	
Botran	...	...	1H	1H	0	Parathion	...	...	...	7	...	
Bravo	...	...	...	1	0	Phaltan (folpet)	14	14	14	14	14	
Captan	0	0	0	0	0	Phosphamidon	0	...	...	...	...	
Copper sulfate	0	0	0	0	0	Phygon (dichlorone)	30	...	...	...	...	
Cypress	7	7	0	15	...	Plictran	14E	14E	3	7	3	
Diazinon	14	14	10	20	10	Polyram	30	...	...	E	E	
Disolatan	A	A	...	...	...	Pydrin	...	...	...	...	...	
Dikar	30	21	...	...	...	Quintar (dichlorone)	21F	A	...	14G	...	
Dithane M-45 (mancozeb)	30	21	0	21	7	Sevin	1	B	7	7	...	
Ferbam	7	7	0	21	7	Sistemycin	1	1	1	1	1	
Funginex	1	...	0	0	...	Sulfur	50	30	...	...	...	
Glyodin	0	0	7	...	...	Systox	0	0	0	0	0	
Guthion (azinphosmethyl)	15	15	15	21	15	Tedion	21	21	30	30	30	
Imidan	7	7	7	14	7	Thiodan	0,E	0,C	0,C	0,C	0,C	
Karathane	21	21	...	45	...	Thiram (thiazole)	...	...	21C	30C	7C	
Kelthane	7	7	7	14	7	Topsin-M	0	...	...	7	...	
Lannate, Nutridin (methomyl)	8	...	...	4	0	(thiophonate-methyl)	0	...	1	1	1	
Lime sulfur	0	0	0	0	0	Triticon	30	...	...	...	...	
Lorsban	28	A	...	14	A	Vendex	14D	...	...	...	...	
Malathion	3	3	3	7	3	Vydate	14	...	...	...	...	
Manzate 200 (mancozeb)	30	15	...	...	...	Zineb	30	7	...	...	30	

... Not recommended.

A. Dormant application up until  $\frac{1}{4}$ -inch green.

B. Do not apply when fruit is present — apply prebloom or postharvest.

C. Not more than 2 applications to fruit.

D. Not more than 3 applications to fruit.

E. Not more than 4 applications to fruit.

F. Not more than 2.1 lb. active ingredient per acre per season.

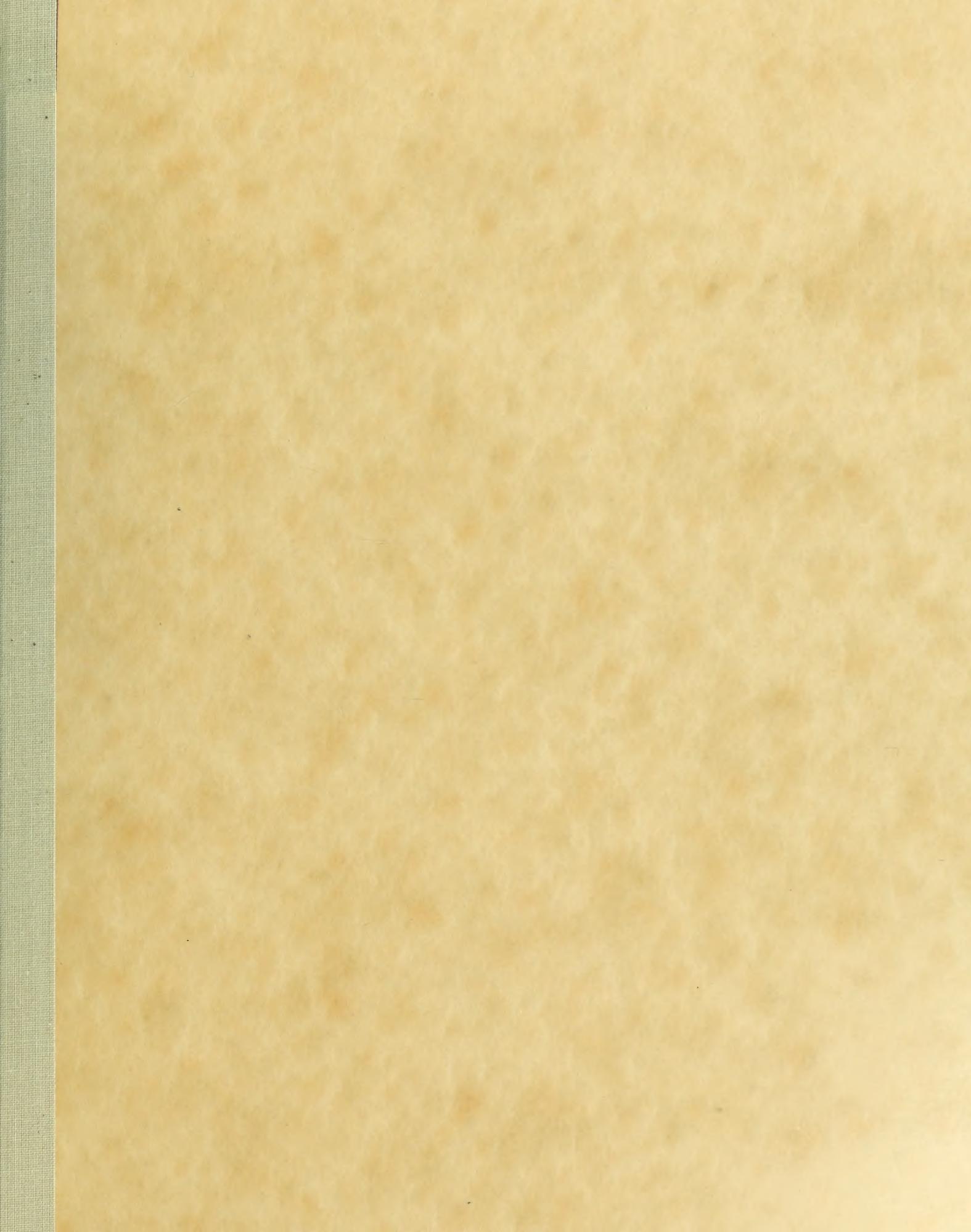
G. Not more than 1.5 lb. active ingredient per acre per season.

H. Can be used as a fruit dip.

I. Do not apply after Petal-fall.







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